

Marine Mammals: Examples of Sustainability (poster)

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What do marine mammals have to do with fish and fisheries? Data for the consumption rates by marine mammals demonstrate how they are more than competitors: they serve as a source of important empirical information for the successful management of fisheries. Such information provides guidance for allocating harvests of fish over time, space and resource species - all with compatible objectives. Fisheries management based on such information would be consistent in its application to harvest strategies involving populations, individual species, groups of species, ecosystems and the entire marine environment. Such management would solve most of the existing problems associated with conventional approaches to fishery management.

Marine mammals have evolved within their complex environment, including all interactions with other species. Each species is defined by its own unique behavioral, morphological and metabolic characteristics. Each has a geographic distribution, density and population size. Many species of marine mammals consume fish or the prey of fish and therefore

compete with fisheries either directly or indirectly. However, marine mammals also provide natural examples of sustainability: predation and fishing are analogous.

Consumption of biomass serves to illustrate this point. Examples of sustainability are provided by the consumption rates empirically observed for each individual species of marine mammal. Each species consumes particular prey species and has done so at rates that have persisted over evolutionary time scales. Like other features, these patterns of consumption show variability. The limits of this variation can be determined and help define what is sustainable. Sustainability is similarly defined by limits seen in the rates that marine mammals feed on groups of fish species, or consume from ecosystems, or from the marine environment as a whole.

This approach to fisheries management takes a systemic view of marine mammal-fisheries interactions. If adopted, it would solve most of the problems of managing fisheries in an ecosystem context.

This may be cited as:

Fowler, C.W. 2000. Marine Mammals: Examples of Sustainability. Page 25 in: Mace, P. (ed.) Proceedings of the 6th NMFS National Stock Assessment Workshop (NSAW): Incorporating ecosystem considerations into stock assessments and management advice. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-F/SPO-46, 78 p.